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for useful minerals, and many others. In a word, a new cosmic branch of the national economy is confidently announcing itself, or being born if you like. Its enterprises are enormous orbital stations, scientific research institutes, and whole cities in orbit around the earth.

Observatory stations, cosmodrome stations, the sun's orbital service, the circumterrestial meteorological cosmic post, geophysicists' bases outside the atmosphere; astronomers' observation platforms, chemists' laboratories, and the researchers firing range... With the giant telescopes, television screens, and the indicators of research instruments and devices, specialists of various professions mount watch, without expending great efforts on the creation of an artificial vacuum, complex particle accelerators, and so on. Every hour which they spend in an orbital scientific center is worth many years of ground observation.

Pantastic? Not at all. Specific engineering decisions about such installations already exist. Numerous drafts for toroidal and cylindrical, spherical and composite constructions of orbital complexes have been described in literature.

Four men created the first experimental orbital station in the world. That was yesterday. Tomorrow tens and hundreds of scientists will be able to work in the future for weeks, months, and even years in enormous laboratories beyond the atmosphere.

The extraterrestial presence of special cosmic docks, and the possibility for spacecraft

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to dock with each other (this has already been tried in practice) will allow higher orbits to be used and the frontiers of space travel to be extended.

Remeber Tsiolkovskiy's extraordinary prophecy. As long ago as 1903 he suggested beginning the direct conquest of space with creation of an "ethereal settlement", that is, what we today call a circumterrestial orbital station.

It is practically impossible to take such enormous installations out into space in an assembled form. For the complete liberation from the earth's gravity of every ton of weight (and orbital stations of the future will weigh more than 10 tons and even more than 100 tons) requires as much useful work as raising an aircraft carrier with a water displacement of 65,000 tons to the height of Saint Isaac's Cathedral. Imagine how wast a missile must be to raise a payload of hundreds of tons.

And how can an "ethereal city" be built? "These dwellings and all the accessories for them must be conveyed by missiles from the earth in a complex (compact) form, unpacked and assembled into a sphere on arrival at the location." Such was Tsiolkovskiy's conclusion.

The road to "ethereal settlements" is complex and difficult, but they are the future of cosmonautics. This future is already being born today as we learn from a TASS report:

"...members of the spacecrafts' crews have tested the on-board systems, carried out maneuvers in orbit, mastered the methods of autonomous navigation, observed the heavenly bodies and the earth, measured lumination by the sun, conducted a mutual medical check, and carried out a unique experiment in metal welding in outer space conditions...."

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Man still has a lot to do in space before he can become the master of the universe's bondless expanse.

The call sign of the first Soviet sputnik which rang out over the world. The flight of Yuriy Gagarin, the first earthman of the century to view our planet from outside. Aleksey Leonov's first step into the cosmic abyss. The first experimental orbital station. The first steps of the Arerican astronauts on the moon. All this is a witness that K. E. Tsiolokovskiy's dreams and ideas about the conquest by mankind of "all of circumsolar space" have ceased to be purely a prophecy. They have become a practical program.

Pursuit of sensation is alien to Soviet science. To make each step toward revelation of the universe's secrets logically in accordance with law-governed phenomena, to receive the maximum return from efforts expended—such are the basic principles of the space research which is conducted by our country. In the strictly thoughtout and rational mastery of the universe the Leninist, businesslike and Soviet style of solving major scientific and technical and national economic problems can be distinctly seen.

In our time the achievements of science and technology, and the successes of

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cosmonautics acquire ever increasing significance in transformation of all people's lives. We are the pitnesses of and the participants in this headlong progress. Speaking in V. I. Lenin's words, "we have the material, both in natural riches and in manpower reserves, and on a large scale, which was freed by a great revolution for the pleole's creativity—to create a really mighty and rich Russia."

There is a lot of work ahead. It shall be done and is alreay being done. For each new year also brings us new achievements.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

USSR

UDC 669.3+669.24

BEREGOVSKIY, V. I., KISTYAKOVSKIY, B. B.

"Metallurgy of Copper and Nickel"

Moscow, Metallurgiya medi i nikelya, "Metallurgiya" Publishing House, 1971, 456 pp

Translation of Foreword: In the Ninth Five-Year Plan the workers in nonferrous metallurgy were presented with the problem of further increasing the volume of production on the basis of a sharp rise in effectiveness. In accordance with this plan in future years the entire growth in the volume of production in this field must be achieved without an increase in the number of production personnel, i.e., entirely through a rise in the productivity of labor. A successful solution of this problem requires basic engineering transformation of enterprises, the introduction of advanced, highly productive techniques and technology, and the solution of complex scientific and technical problems. Extensive use of the achievements of the modern revolution in technology, rapid technical progress, and the improvement of technology impose ever-increasing requirements on the level of qualifications of workers and dictate an increase in the percentage of metallurgical specialists in industry.

The textbook "Metallurgy of Copper and Nickel" is intended for teknnikum students who are studying the metallurgy of heavy nonferrous metals; it may be

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USSR

BEREGOVSKIY, V. I., KISTYAKOVSKIY, B. B., Metallurgiya medi i nikelya,

useful to engineering and technical workers, masters, and worker-innovators in the industry.

The book reflects the great shifts in the development of the metallurgy of copper and nickel occurring in recent years and describes new processes and improvements in equipment. The theoretical bases of the processes are presented, starting from modern scientific ideas. Attention is given to metallurgical calculations. Each chapter has problems for reviewing the most important

The introduction and Chapters I-XIII and XXIV-XXXIV were written by Engineer V. I. Beregovskiy and Chapters XIV-XXIII were written by Engineer B. B. Kistyakovskiy

Table of Contents [Abridged]:

Part I. Metallurgy of Copper

Chapter 1. Brief Historical Information; Properties of Copper and Its Alloys; Fields of Application

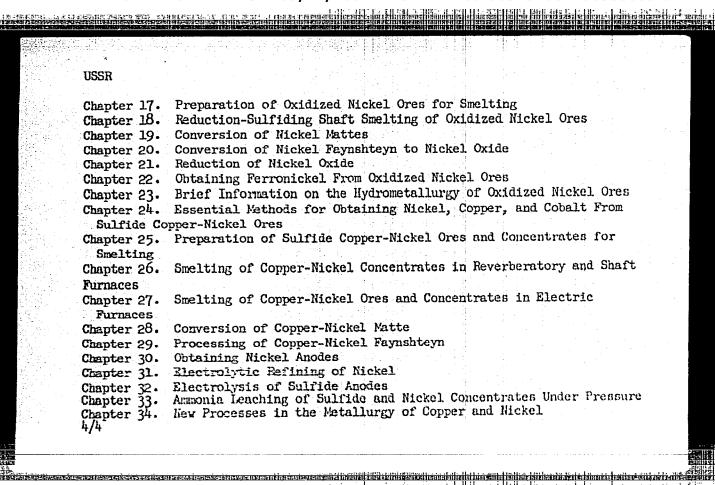
2/4

USSR BEREGOVSKIY, V. I., KISTYAKOVSKIY, B. B., Metallurgiya medi i nikelya, 1971, 456 pp Chapter 2. Raw Material Resources of Copper Chapter 3. Chapter 4. Enrichment of Copper Ores Methods of Metaliurgical Working of Copper Ores and Concentrates Chapter 5. Roasting of Ore and Concentrate Chapter 6. Smelting of Copper Concentrates in Reverberatory Furnaces Chapter 7. Electric Smelting of Copper Concentrates
Chapter 8. Smelting of Copper Concentrates in the Suspended State and by the Kivtset Process (Oxygen Suspended Cyclone Electrothermal Smelting) Chapter 9. Smelting of Copper Raw Material in Shaft Furnaces Chapter 10. Conversion of Copper Matte Chapter 11. Pyro-Refining of Copper Chapter 12. Electrolytic Refining of Copper Chapter 13. Hydrometallurgical and Combined Processes of the Working of Copper Ores and Concentrates Part II. Metallurgy of Nickel Chapter 14. Brief Historical Information. Properties of Nickel and Its Alloys, Their Value in the Economy Chapter 15. Raw Material Resources of Nickel Chapter 16. Methods of Working Nickel Ores 3/4

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APPROVED FOR RELEASE: 09/17/2001



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UNCLASSIFIED

PROCESSING DATE--230CT70

TITLE--PHASE TRANSFORMATIONS AND SOLUBILITY OF CALCIUM SULFATE IN NITRIC ACID SOLUTIONS AT GODEGREES -U-

AUTHOR-(02)-KRUCHENKO, V.P., BEREMZHANOV, B.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(1), 25-9

DATE PUBLISHED----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CALCIUM COMPOUND, SULFATE, NITRIC ACID, GYPSUM, PHASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1997/1508

STEP NO--UR/0360/70/020/001/0025/0029

CIRC ACCESSION NO--APO120289

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

019 UNCLASSIFIED PROCESSING DATE--230CT70 CIRC ACCESSION NO--APO120289 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LEAST SOL. FORM OF CASO SUB4 IS THE ANHYDRITE, THE MAX. SOLY. OF WHICH IS 3.00PERCENT OF ISPERCENT HNO SUB3. AS THE CONCN. OF THE ACID INCREASES (15-55PERCENT), THE SOLY. OF CASO SUB4 DROPS (3.00-0.49PERCENT). 38PERCENT HND SUB3 IS THE BREAK POINT FOR THE SOLY. OF CASO SUB4 .2H SUB2 O AND CASO SUB4 .0.5H SUB2 O: BELOW THIS CONCN., GYPSUM IS LESS SOL. AND ABOVE THIS CONCN., THE SESQUIHYDRATE IS MORE STABLE. THE MAX. SOLY. OF GYPSUM (3.56PERCENT) IS IN 20PERCENT HNO SUB3. IN 5-LOPERCENT HNO SUB3 THE SOLID PHASE IMMEDIATELY AFTER PPTN. IS GYPSUM, AT 15-30PERCENT HNO SUB3 THE PPT. IS A MIXT. OF THE SESQUIHYDRATE AND THE DIHYDRATE: THIS MIXT. SOON CHANGES INTO DIHYDRATE. AT 30-35PERCENT HNO SUB3, THE TRANSFORMATION OF DIHYDRATE INTO ANHYDRITE IS FASTER THE HIGHER THE ACID CONCN. 40 PERCENT HNO. SUB3 AND ABOVE, THE PPTD. SESQUIHYDRATE IMMEDIATELY TRANSFORMS INTO ANHYDRITE. THE RATE OF TRANSFORMATION INCREASES WITH AN INCREASE OF THE ACID CONCN. THUS, AT 5-35PERDENT HND SUB3 THE PHASE TRANSFORMATION PROCEEDS ACCORDING TO: SESQUIHYDRATE YIELDS DIHYDRATE YIELDS ANHYDRITE; IN 40 PERCENT HNO SUB3 AND HIGHER IT PROCEEDS ACCORDING TO: DIHYDRATE YIELOS SESQUIHYDRATE YIELDS ANHYDRITE. KAZ. GOS. UNIV. IM. KIROVA, ALMA-ATA, USSR. FACILITY:

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--300C170
TITLE--EXISTENCE OF METABORIC ACID IN THE HBO SUB2.NH SUB4 SUB2 SO SUB4.H
SUB2 O SYSTEM AT 20 AND 35DEGREES. II -UAUTHOR-(04)-BOCHKAREVA, I.V., YERIMBETOVA, I.D., KARAZHANOV, N.A.,

GEREMZHANOV, B.A. COUNTRY OF INFO--USSR

SOURCE-IZV. AKAD. NAUK KAZ. SSR. SER. KHIM. 1970, 20(1), 21-5

DATE PUBLISHED----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS-BORIC ACID, WATER, CRYSTALLIZATION, ISOTHERM

CONTROL MARKING--NO RESTRICTIONS

PROXY REEL/FRAME--1997/1507

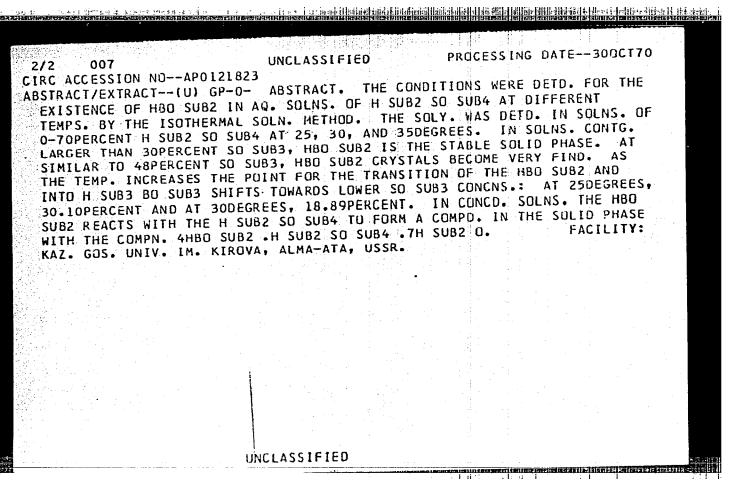
STEP NO--UR/0360/70/020/001/0021/0025

CIRC ACCESSION NO--AP0120288

UNCLASSIFIED

2/2 011 UNCLASSIFIED CIRC ACCESSION NO--APO120288 PROCESSING DATE--300CT70 ABSTRACT/EXTRACT-- (U) GP-0- ABSTRACT. THE SOLY. ISOTHERM OF THE TITLE SYSTEM CONSISTS OF 3 BRANCHES OF CRYSTN. OF WHICH ONE BELONGS TO H SUB3 BO SUB3, ANOTHER TO HBO SUB2, AND THE 3RD TO (NH SUB4) SUB2 SO SUB4; THERE ARE 2 ISOTHERMAL INVARIANT POINTS ON THE ISOTHERM. THE LIQ. PHASE OF THE 1ST ISOTHERMAL INVARIANT POINT CONTAINS (NH SUB4) SUB2 SO SUB4 14.81 AND 8 SUB2 O SUB3 4.85PERCENT, WHILE THE SOLID PHASE CONTAINS ORTHO AND METABORIC ACID. THE LIQ. PHASE OF THE 2ND ISOTHERMAL INVARIANT POINT CONTAINS (NH SUB4) SUB2 SO SUB4 38.95 AND B SUB2 O SUB3 5.06PERCENT, WHEREAS THE SOLID PHASE CONSISTS OF HBO SUBZ AND (NH SUB4) SUB2 SO SUB4. THE CRYSTN. OF H SUB3 BO SUB3 EXTENDS FROM O CONCN. OF (NH SUB4) SUB2 SO SUB4 TO THE 1ST ISOTHERMAL INVARIANT POINT. THE CRYSTN. OF HBO SUB2 EXTENDS FROM THE POINT AT WHICH H SUB3 60 SUB3 CHANGES TO HBO SUB2 TO THE 2ND ISOTHERMAL INVARIANT POINT. THE CRYSTN. OF (NH SUB4) SUB2 SO SUB4 EXTENDS FROM O CONCN. OF H SUB3 BO SUB3 TO ITS INTERSECTION WITH THE HOO SUB2 CRYSTN. BRANCH OF THE ISOTHERM. 20-35DEGREES, THE AMT. OF HBO SUB2 INCREASES WITH TEMP. THE CONCN. OF (NH SUB4) SUB2 SO SUB4 AT WHICH HBO SUB2 IS STABLE AT 20DEGREES IS 22.40PERCENT AND AT 35DEGREES IT DROPS TO 14.81PERCENT. FACILITY: KAZ. GOS. UNIV. IM. KIROVA, ALMA-ATA, USSR.

UNCLASSIFIED



UNCLASSIFIED PROCESSING DATE--04DEC70
THE SURFACE OF METALS. II. BEHAVIOR OF HYDROGEN PEROXIDE ON
AUTHOR-(02)-BERENBLIT, V.M., PAVLOVA, G.L.

COUNTRY OF INFO--USSR

SOURCE-ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(5), 1057-61

DATE PUBLISHED----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROGEN PEROXIDE, GOLD ALLOY, NICKEL ALLOY, PLATINUM ALLOY, CATALYTIC DECOMPOSITION

CONTROL MARKING-NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3008/1217

STEP NO--UR/0080/70/043/005/1057/1061

CIRC ACCESSION NO--APOL38232

UNCLASSIFIED

024 UNCLASSIFIED CIRC ACCESSION NO--APO138232 PROCESSING DATE--04DEC70 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DECOMPN. OF H SUB2 O SUB2 ON A PT SURFACE FOLLOWS AN ELECTROCHEM. MECHANISM AS A RESULT OF MUTUAL COMPENSATION OF ITS OXION. AND REDN. THE DECOMPN. OF H SUB2 O SUB2 WAS EXTENDED TO SURFACES OF AU AND NI. THE SAME EXPTL. PROCEDURE WAS FOLLOWED TO OBPAIN THE POLARIZATION AND KINETIC CURVES. H SUB2 O SUB2 (30PERCENT) WAS USED AT VARIOUS PH VALUES (BUFFER SOLNS.). AS IN THE CASE OF PT, THE RATE OF DECOMP. OF H SUB2 O SUB2 ON AU DECREASES AT LOWER PH VALUES AND AT INCREASED DURATION OF EXPT. CORRESPONDINGLY, THE CHARACTER OF POLARIZATION CURVES CHANGES: THE OVERVOLTAGE OF ANODIC AND CATHODIC PROCESSES INCREASES WITH TIME. THE DECOMPN. OF H SUB2 O SUB2 ON AU FOLLOWS THE ELECTROCHEM. MECHANISM ENTIRELY ANALOGOUS TO THAT ON PT. THE DIFFERENCE IS LIMITED TO SLOWER RATES OF BOTH PARTIAL REACTIONS AND THE TOTAL PROCESS. CONTRARY TO PT AND AU, METALLIC NI DOES NOT CATALYZE THE DECOMPN. OF H SUB2 O SUB2 EVEN IN ALK. MEDIA. INDICATIONS THAT THE ABSENCE OF CATALYTIC DECOMPN. OF H SUB2 O SUB2 ON NI IS CONNECTED WITH THE IMPOSSIBILITY OF OCCURRENCE OF A CATHODIC PROCESS ON THE PASSIVATED SURFACE OF THE METAL. THE DECOMPN. OF H SUB2 O SUB2 ON ACTIVE NI DOES OCCUR, BUT BECAUSE OF ITS REDN. WHICH IS COMPENSATED FOR BY THE CURRENT OF DISSOLN. OF THE ACTIVE METAL AND NOT FACILITY: GOS. INST. PRIKL. KHIM., LENINGRAD, USSR.

UNCLASSIFIED

Acc. Nr: APO 049100 Abstracting Service: CHEMICAL ABST. 5/70

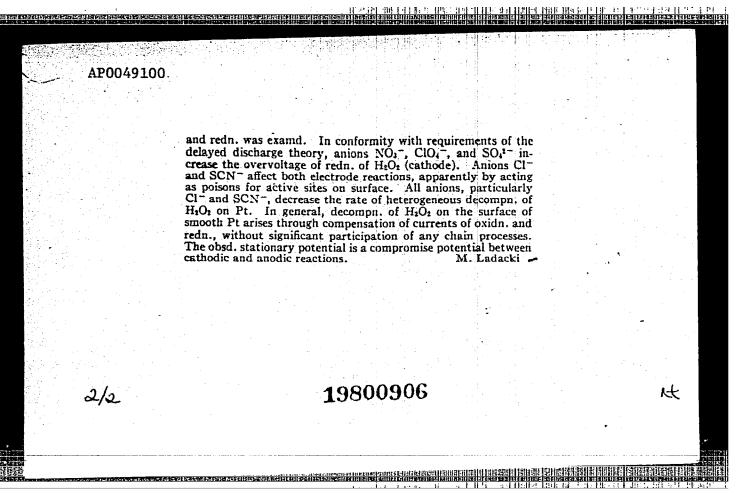
Ref. Code: ...

104417u Mechanism of the catalytic decomposition of hydrogen peroxide on the surfaces of metals. I. Catalytic decomposition of hydrogen peroxide on platinum. Berenblit. V. M.; Paylova. G. L. (Gos. Inst. Prikl. Khim., Leningrad, USSR). Zh. Prikl. Khim. (Leningrad) 1970, 43(1), 51-8 (Russ). Several mechanisms have been proposed in the literature for heterogeneous catalytic decompn. of H_1O_2 on metals. The most plausible appears to be the electrochem. (donor-acceptor) mechanism assuming that reactions of oxidn. and redn. of H_2O_2 take place concurrently on the metal surface: (a) $H_2O_2 + 2H^+ + 2e^- \rightarrow 2H_2O$, (b) $H_2O_2 - 2e^- \rightarrow O_2 + 2H^+$. The catalytic role of metal is fulfilled by facilitating the exchange of electrons between H_2O_1 mols. In this study, confirmation of this electrochem. mechanism was sought in decompn. of H_2O_2 on smooth Pt. Polarization curves were obtained by galvanostatic method at 25° ; Pt disks with 1.0

or 0.1 cm² area were used; the concn. of H₂O₂ was 0.3-90%. A decrease in the catalytic activity of Pt is accompanied by an increase of the overvoltage of electrode reactions. The rate of heterogeneous decompn. of H₂O₂ depended directly on the current strength (in the absence of polarization) in a broad range of pH and concn. The effect of surface-active anions on the rate of catalytic decompn. and on rates of electrode reactions of oxidn.

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REEL/FRAME 19800905



1/2 010 UNCLASSIFIED PROCESSING DATE--16UCT70
TITLE--DEVELOPMENT OF RELAY BRANCH OF UNIVERSAL SYSTEM OF ELEMENTS OF
INDUSTRIAL PNEUMATIC AUTOMATION -UAUTHOR-(04)-BERENDS, T.K., YEFREMOVA, T.K., TAGAYEVSKAYA, A.A., TAL, A.A.

COUNTRY OF INFO--USSR

SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 4, PP 176-131

DATE PUBLISHED ---- 70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--INDUSTRIAL AUTOMATION, DISCRETE AUTOMATION, PNEUMATIC CONTROL
SYSTEM

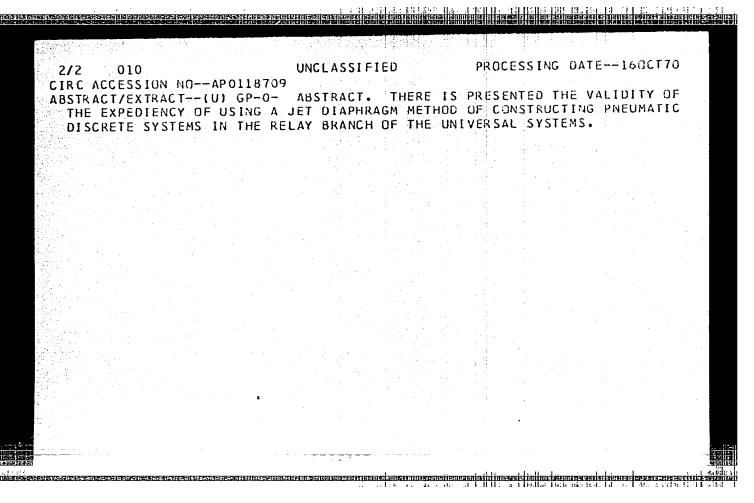
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1996/1731

STEP NO--UR/0103/70/000/004/0176/0181

CIRC ACCESSION NO--APOIL8709

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PROCESSING DATE--300CT70 UNCLASSIFIED 1/3 TITLE-PHOTOINDUCED TRIPLET SINGLET TRANSFER OF ELECTRONIC EXCITATION ENERGY IN THE LIQUID PHASE -U-

AUTHOR-(05)-BERENFELD, V.M., CHUMAEVSKIY, YE.V., GRINEV, M.P., KURYATNIKOV. YU.I., ARTEMYEV, E.T.

CCUNTRY OF INFO-USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34131, 678-82

DATE PUBLISHED ----- 70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS-EXCITATION ENERGY, FLUORENSCENCE SPECTRUM, BROMINATED ORGANIC COMPOUND, ANTHRACENE, LIGHT EXCITATION, AROMATIC HYDROCARBON, ELECTRON SPIN

CENTROL MARKING-NO RESTRICTIONS

DOCUMENT CLASS-UNCLASSIFIED PROXY REEL/FRAME--1999/1895

STEP NO-UR/0048/70/034/003/0678/0632

CIRC ACCESSION NO-APO123682

- UNCLASSIFIED

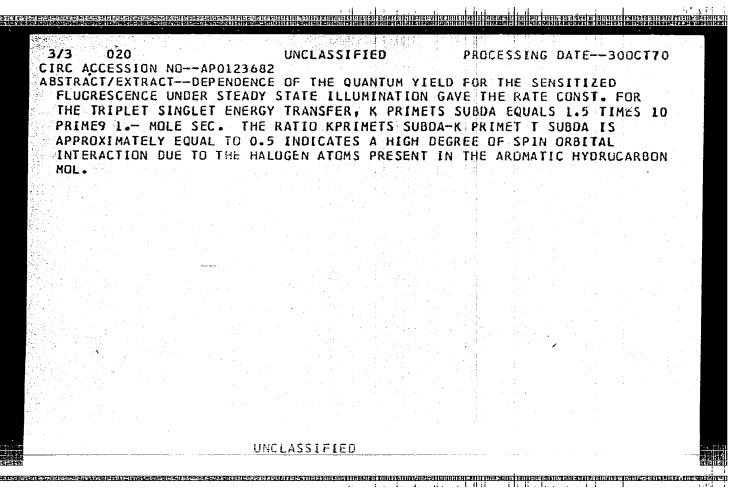
APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

PROCESSING DATE--300CT70 UNCLASSIFIED 2/3 020 CIRC ACCESSION NO-APO123682 ABSTRACT/EXTRACT-- (U) GP-0- ABSTRACT. IN THE LIQ. PHASE TRIPLET, SINGLET ENERGY TRANSFER IS AN INTERMOL. RADIATIONLESS TRANSFER OF ELECTRONIC EXCITATION ENERGY FROM THE TRIPLET LEVEL OF THE DONOR NOL. TO THE SINGLET EXCITATION LEVEL OF THE ACCEPTOR MOL. THIS WAS STUDIED IN THE FLUOREESCENCE SPECTRUM OF 9,10, DIBROMOANTHRACENE IN BENZENE, SENSITIZED WITH ACPH, EXCITED WITH LIGHT OF 313 NM AT 20DEGREES. THE CONCN. RANGES OF THE ACCEPTOR AND DONOR WERE 2 TIMES 10 PRIME NEGATIVES MINUSS TIMES 10 PRIME NEGATIVES, AND 0.1,0.5 MOLE-1. RESP. THE CONCN. EFFECT ON THE QUANTUM YIELD AND ON THE DECAY TIME OF THE FLUORESCENCE WITH PULSED PHOTOEXCITATIONS WERE STUDIED UNDER STEADY STATE AND NON STEADY STATE CONDITIONS, RESP. WITH INCREASED CONCN. OF THE ACCEPTOR, THE QUENCHING RATE OF THE AFTERGLOW BECOMES HIGHER. THE QUANTUM YIELD RATIO INCREASES WITH THE ACCEPTOR CONCN. APPROACHING A LIMITING VALUQUIVALENT; SIMILAR 0.3 FOR C IS GREATER THAN 3 TIMES 10 PRIME NEGATIVES MOLE-1. BELOW THAT CONCN. THE ENERGY TRANSFER IS COMPETITIVE WITH THE SPONTANEOUS DEACTIVATION PROCESS OF THE TRIPLET ACPH MOLS. THE PRECESSES OCCURRING IN THE SOLN. UNDER THE ACTION OF LIGHT ARE DISCUSSED. THE RELATIONS FOR THE INTENSITY OF THE FLUORESCENCE VS. TIME ARE DERIVED IN TERMS OF THE LIFETIME OF THE DONOR TRIPLET MOLS. TAUD, DETD. AS (3 PLUS OR MINUS 10PERCENT) TIMES 10 NEGATIVE PRIMET SEC. THE VALUE OF THE ENERGY TRANSFER CONST., KAPPA SUBDA EQUALS (5 PLUS OR HINUS 0.5) TIMES 10 PRIMEIO L.-MOLE SEC IS CLOSE TO THAT OF THE DIFFUSION CONST. INDICATING THAT THE PROCESS IS A DIFFUSION CONTROLLED ONE. THE STUDY OF THE CONCN.

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USSR

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GORLUBEY, I. F., BERENSHTEYN, D. R., and BLYAKHMAN, E. A.

त्रकृतिक विकास स्थापना स्थापन

"Calculation of the Optimal Mixtures of Luminophors Using a Simplex Method"

Sb. nauch. tr. VNII lyuminoforov i osebo chist. veshchestv (Collection of Scientific Works from the All-Union Scientific Research Institute of Lumino-phors and Principles for Purifying These Compounds), Vyp 7, 1972, pp 33-39 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L169

Translation: A method is given for a computer calculation of complex mixtures for luminescent lamps having an improved color index. An example is given of the composition of such a mixture of the luminescent compounds LTS-1, IG-3, $Sr_3(PO_{l_1})_2$: Sn, I-25, LTS-2, I-42, I-35, L-14, I-3500, and L-6500. It was shown that using the computer significantly hastened the selection of the optimum mixture.

1/1

PROCESSING DATE--27NOV70 UNCLASSIFIED TITLE--IRREGULARITY IN THE DISTRIBUTION OF GOLD IN ROCKS AND MINERALS, ILLUSTRATED BY RADIOACTIVATION ANALYSIS DATA -U-AUTHOR-(05)-ROZHKOV, I.S., RAKOVSKIY, E.YE., BERENSHTEYN, L.YE., SEREBRYANYY, B.L., SHILIN, N.L. COUNTRY OF INFO--USSR SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 927-30 DATE PUBLISHED ---- 70 SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY TOPIC TAGS--GOLD, ROCK, MINERAL, GEOCHEMISTRY, RADIOACTIVITY MEASUREMENT, NEUTRON ACTIVATION ANALYSIS CONTROL MARKING--NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0020/70/191/004/0927/0930 PROXY REEL/FRAME--3001/0569 CIRC ACCESSION NO--AT0126315 UNCLASSIFIED

2/3 · 015 UNCLASSIFIED

PROCESSING DATE--27NUV70

CIRC ACCESSION NO--AT0126315

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RADIOACTIVATION SAMPLINE FOR AU IN ROCKS AND MINERALS BY USING SUBSTOICHIOMETRIC SEPN. IS VERY RELIABLE AND HAS A VERY GOOD REPRODUCIBILITY (SCATTERING OF PARALLEL DETNS. SMALLER THAN 20PERCENT). IT REQUIRES, HOWEVER, A SAMPLE WEIGHING LARGER THAN OR EQUAL TO 100 MG. THE EFFECT OF NATURAL SCATTERING OF AU ON THE REPRODUCIBILITY OF RESULTS OF RADIOACTIVATION ANAL. WAS INVESTIGATED. THE SCATTERING OF AU DISTRIBUTION IN ROCKS AND MINERALS DEPENDED ON NUMEROUS FACTORS; FORM OF AU OCCURRENCES IN THE MINERAL, STRUCTURAL AND TEXTURAL CHARACTERISTICS OF ROCKS, AND INTENSITY OF SECONDARY ALTERATIONS. THE ERROR OF AN ANAL. DETN. CONSISTS OF 2 COMPONENTS: ERROR-RELATED TO THE REPRODUCIBILITY OF THE METHOD (SIGMA SUBR) AND ERROR RELATED TO HETEROGENEITY OF AN ANALYZED SAMPLE (SIGMA SUBH). THE . SUMMARY ERROR (SIGMA SIGMA) IN DETG. THE AV. CONTENT OF AN ELEMENT IN AN ANALYZED SAMPLE IS, SIGMA SIGMA PRIMEZ EQUALS SIGMA SUBR PRIMEZ PLUS SIGNA SUBH PRIMEZ. THE RESULTS OF LARGER THAN 200 NEUTRON ACTIVATION DETNS. OF AU IN ROCKS AND MINERALS, PROCESSED STATISTICALLY, SHOWED THAT THE NATURAL HETEROGENEITY IN AU CONTENTS IN AMPHIBOLE GABBRO, BIOTITE AMPHIBOLE DIORITE, BIOTITE AMPHIBOLE GRANODIORITE; GRANITE VEIN IN GRANDDIORITE, APLITE VEIN IN GRANDDIORITE, AND APLITE VEIN IN GABBRO IS MUCH HIGHER THAN THE ERROR OF REPRODUCIBILITY OF THE METHOD ISIGMA SUBR SIMILAR TO 20PERCENT). NATURAL HETEROGENEITY WAS SO HIGH THAT THE AU CONTENTS IN INDIVIDUAL BATCHES OF THE SAME SAMPLE DIFFERED FROM EACH OTHER BY LARGER THAN 5 TIMES.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

ABSTRACT/EXTRACT-THEREFORE, IF SIGMA SUBR IS SMALL, THERE ARE REASONS TO USE THE MOST ACCURATE METHODS OF DETN.; BUT IF SIGMA SUBH IS MUCH MIGHER THAN SIGMA SUBR, THEN THE USE OF ACCURATE AND USUALLY EXPENSIVE ANAL. METHODS IS SENSELESS IF DETN. IS MADE FROM SMALL SAMPLES NONREPRESENTATIVE WITH RESPECT TO THE INITIAL OBJECT. FACILITY: TSENT. NAUCH. ISSLED. GORNORAZVED. INST. TSVET. REDK. BLAGO ROD. METAL., MOSCOW, USSR.	3/3 .015 CIRC ACCESSION NOAT012631	UNCLASSIFIED	PROCESSING DATE27NOV70	
TSENT. NAUCH. ISSLED. GORNORAZVED. INST. TSVET. REDK. BLAGO ROD. METAL.,	ABSTRACT/EXTRACTTHEREFORE USE THE MOST ACCURATE MET THAN SIGMA SUBR, THEN THE	, IF SIGMA SUBR IS SHOOLS OF DETN.; BUT USE OF ACCURATE AND	IF SIGMA SUBH IS MUCH HIGHER DUSUALLY EXPENSIVE ANAL.	
	NONREPRESENTATIVE WITH RETSENT. NAUCH. ISSLED. GOR	SPECT TO THE INITIAL	OBJECT. FACILITY:	
UNCLASSIFIED				

USSR

VDC 517.53

BERENSHTEYN, M. N., Moscow

"Some Sufficient Conditions for the Analyticity of Functions"

Kazan', <u>Izvestiya VUZ</u>, <u>Matematika</u> (News of the Higher Educational Institutions, Mathematics), No 11(114), Nov 71, pp 11-18

Abstract: The theorem has been stated and proved that a continuous function f(z) of a complex variable z is analytic in a region D if in each point of the region (except perhaps for points of some finite or enumerable set) the function has a finite asymptotic derivative. A similar theorem was proved for a function having the property K''!. The function f(z) of a complex variable z in a region D has the property K'!' in point z C D if two rays emanate from the point along two different lines which possess the identical finite limit. The validity of these theorems fails with respect to sets having null measures. The author relaxes the constraints and imposes additional conditions on the function f(z) to hold for these previously excluded sets.

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- 13 -

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BERENSHTEYN, M. N., <u>Izvestiya VUZ</u>, <u>Matematika</u> (News of the Higher Educational Institutions, Mathematics), No 11(114), Nov 71, pp 11-18

It is shown that if a function f(z), defined on set \mathbb{E} , has a complete differential with respect to \mathbb{E} at some point $z \in \mathbb{E}$ and at least one finite derivative, the function has a derivative with respect to \mathbb{E} in point z. The conditions under which the function f(z) is analytic in a closed region are given: 1) function f(z) is monogenic everywhere in the region, except perhaps in points of some complete set II contained in Δ ; 2) if meas II>0, then f(z) is monogenic almost everywhere over set II; and 3) the inequality $|f(z) - f(z')| \le \mathbb{K} |z - z'|$ holds for each point z and z' of sets Δ and II, respectively, where $\mathbb{K} = \mathrm{const} > 0$.

Four theorems are given and proved. The author thanks D. Ye. Men'shov, who supervised the work. Orig. art. has la refs.

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TITLE--ELECTRICALLY NEUTRAL FIELDS OF VECTOR MESONS AND THE LIMITING MATTER DENSITIES IN COLLAPSING SYSTEMS -U-AUTHOR-(02)-BERESIN, V.A., MARKOV, M.A.

COUNTRY OF INFO--USSR

SOURCE-TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 2. PP 161-165 DATE PUBLISHED----70

SUBJECT AREAS -- PHYSICS

TOPIC TAGS--VECTOR MESON, QUANTUM FIELD THEORY

CONTROL MARKING--NO RESTRICTIONS

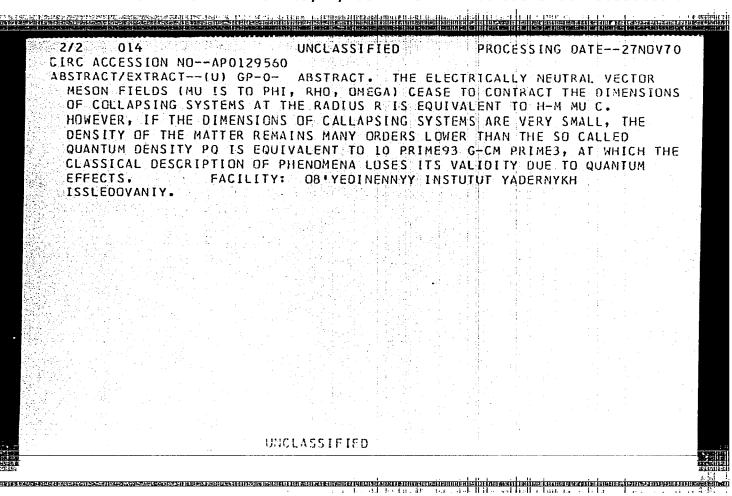
PROXY REEL/FRAME--3003/0328

STEP NO--UR/0646/70/003/002/0161/0165

CIRC ACCESSION NO--AP0129560

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"



USSR

BERESLAVSKIY, V.

"Farms in Neptune's Kingdom"

Leningrad, Leningradskaya Pravda, 16 Nov 71, p 4

Translation: The future of mankind is connected somehow or other with the ocean. It can be an inexhaustible source of energy, it contains vast reserves of mineral substances for industry, but it is primarily an abundant source of food. This source is, of course, used even now. However, the dozens of millions of tons of fish caught annually in the depths of the sea represent only a small portion of what the world ocean can give.

Scientists in many countries are now preparing programs for a scientific marine resources industry. The object of these programs is to make man not just a hunter in Neptune's kingdom, but a creator capable of controlling the growth of sea organisms in order to increase productivity, which would greatly exceed the level that nature itself can provide. To grow big harvests of algae in underwater fields and gardens, to breed and control the reproduction of valuable fish species, mollusks, and other marine animals on specially created farms and pastures, and to transform the ocean into a cultivated

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USSR

BERESLAVSKIY, V., Leningradskaya Pravda, 16 Nov 71, p 4

farm, an inexhaustible source of raw food materials — today all this is no longer considered a fantasy of scientific dreamers, but a serious and feasible program for an immediate "reconstruction" of the world ocean.

However, before embarking on such a "reconstruction" and investing funds in the "ocean business," we must know exactly which sea crops should be cultivated, which inhabitants of the sea should be raised in which regions to obtain the desired results.

About 10 years ago Leningrad hydrobiologists from the Zoological Institute of the Academy of Sciences USSR began the first investigations of the composition, structure, and distribution of sea dwellers in the upper, most productive zones of the Gulf of Pos'yeta. This gulf in the Sea of Japan was selected as the basic region for the experiment, because even then it was obvious that the Pacific area is very promising for artificial raising of marine plants and animals. The studies of many years, in which workers from the Pacific Ocean Institute of Fisheries and Oceanography took an active part, 2/6

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USSR

BERESLAVSKIY, V., Leningradskaya Pravda, 16 Nov 71, p 4

showed that more than 800 species of invertebrates and about 250 species of underwater plants inhabited this region.

During those years the directors of the hydrobiological expedition, A. N. Golikov and O. A. Skarlato, together with other workers, made more than 100 underwater missions. They conducted their research by means of shallow diving equipment, which enabled them not only to be in Neptune's kingdom, but to take a unique population census and to study the life cycles of important mass species of marine inhabitants, the biological and physicochemical background, and the distribution of the species in the underwater area. The gulf's hydrobiology was not only studied during the summer months. Expeditions were also organized in spring, fall, and winter. In this way an objective picture of the underwater world in the Gulf of Pos'yeta was drawn.

What did this give? On the basis of the vast knowledge acquired from the bottom of the sea, the scientists singled out the deep-sea scallop, the mussel, the Modiolus, the Spisula, the giant oyster, and the trepang as the most promising invertebrates for artificial breeding.

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USSR

BERESLAVSKIY, V., Leningradskaya Pravda, 16 Nov 71, p 4

Somewhat later Leningrad scientists developed and made scientific recommendations for the regulation of the invertebrate fishery under the conditions of southern Primor'ye and for the establishment of controlled underwater farms for raising scallops, oysters, Spisulas, and trepangs there. These recommendations were transmitted to the Ministry of the Fish Economy and became the scientific basis for the organization of the first underwater experimental farm in the Gulf of Pos'yeta.

It was not merely scientific interest that gave impetus to the enthusiastic workers during establishment of the farm. Even though there is a saying "Everyone to his own taste," eyewitnesses maintain that the dishes prepared from these animals are as tasty as the names of these animals are exotic for most people. Their assortment can be very varied, i.e., from a salad to a roast. In nutritive value, protein content, and abundance of trace elements such underwater food can compete with many land food delicacies. The deepsea scallop, the supply of which in the coastal waters of Primor'ye is in need of immediate replenishment, is especially valuable.

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USSR

BERESLAVSKIY, V., Leningradskaya Pravda, 16 Nov 71, p 4

Now we shall discuss how the underwater food is grown on the sea farm. In order to ensure the greatest increase in mollusks, the underwater farmers had to greatly change their living conditions in infancy, i.e., at the larvae stage. Under natural conditions a large number of deep-sea scallops, mussels, trepangs, and oysters are lost at this stage. This happens because at this age the scallop must attach itself to an alga on which it "matures" If this cannot be done, the mollusk dies.

In order to avoid such losses, at the suggestion of the Leningrad scientists the farm has been equipped with special suspended networks. They perform the role of artificial thickets. Old cotton nets or jute ropes successfully replace the algae. Attached to anchored rafts, the ropes become an excellent incubator for the larvae.

During their transition to life on the bottom, mollusks often become the victims of crabs and starfish. In order to protect them, a kind of second bottom was formed. The protective devices drawn over the sea bottom, where mollusks settle and normally develop, perform the role of the second bottom. 5/6

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USSR

BERESLAVSKIY, V., Leningradskaya Pravda, 16 Nov 71, p 4

Usually, the active growth of scallops and other mollusks continues for several years. The first industrial batches of deep-sea scallops are already growing up on the farm, coming closer to commercial sizes. Another large batch of valuable invertebrates is being started this year. Leningrad scientists, having studied the coast of Primor'ye and Sakhalin and the vast sea territories near the Kurile Islands, mapped out new promising places for the establishment of controlled underwater farms.

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- 10 -

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

Acc. Nr:

A P0036430

Ref. Code: UR 0213

PRIMARY SOURCE:

Okeanologiya, 1970, Vol 10, Nr 1, pp//3-1/6

A. F. BERESNEV, V. M. KOVYLIN

THE RELIEF OF THE BASEMENT AND THE DISTRIBUTION OF THICKNESSES OF BOTTOM SEDIMENT IN THE CENTRAL PART OF THE JAPAN SEA

Summary

The seismic studies carried out in the Japan Sea by the Institute of Oceanology have been used by the authors as a basis for making a scheme of the sea bed relief as well as a scheme of the distribution of thicknesses of bottom sediment in its central part. Thicknesses of sediments are found to be dependent on the depth of the surface of the primary tectonic relief. The greatest thicknesses are confined to the areas of the deepest position of the basement whereas the raised parts of the latter are characterized by small thicknesses of sedimentary cover or even by its absence.

D.M.

REEL/FRAME 19721274

12

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

1/2 031 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--THE PLASTICITY AND STRENGTH OF SOLID BODIES AT HIGH PRESSURES -U-

AUTHOR-(05)-BERESNEV, B.I., MARTYNOV, YE.D., RODIONOV, K.P., BULYCHEV, D.K., RYABIBIN, YU.N.
COUNTRY OF INFO-USSR

SOURCE—THE PLASTICITY AND STRENGTH OF SOLID BODIES AT HIGH PRESSURES (PLASTICHNOST' I PROCHNOST' TVERDYKH TEL PRI VYSOKIKH DAVLENIYAKH) DATE PUBLISHED----70

SUBJECT AREAS -- MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PLASTIC DEFORMATION, HIGH PRESSURE EFFECT, MECHANICAL STRENGTH, METAL MECHANICAL PROPERTY/(U)GTSK METAL

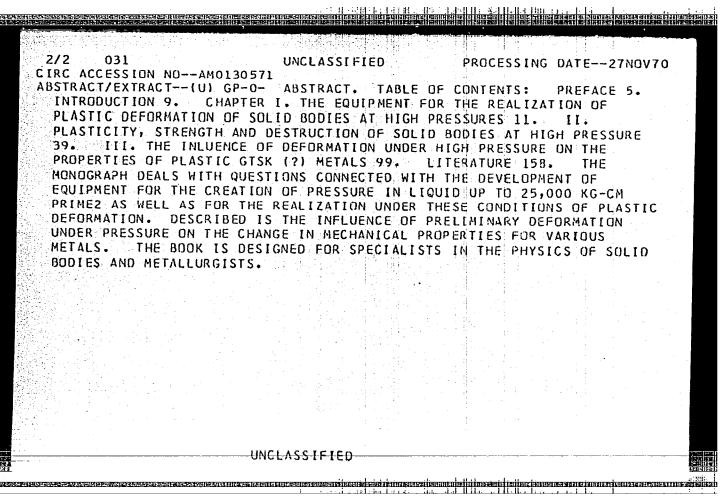
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3003/1703

STEP NC--UR/0000/70/000/000/0001/0159

CIRC ACCESSION NO--AMOU30571

UNCLASSIFIED



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Heat Treatment

USSR

UDC 621.791.053.011.621.78.669.14.018.8

RAZIKOV, M. I., Doctor of Technical Sciences, POSPELOV, N. G., Engineer, UAMOYLOV, M. I., and BERESMEV, G. A., Candidates of Technical Sciences, and IVANOVA, M. A., Engineer

"Search for Optimum Heat Treatment Modes for N18K9M5T Steel Weld Joints"

Moscow, Svarochnoye Proizvodstvo, No 8, Aug 73, pp 13-16

Abstract: Results are presented from a study of grain growth in the heataffected zone and the presence of the amount of weak stable austenite, enriched
with titanium and molybdenum, in the weld joint of thin-sheet N16K9M5T maraging
steel with a chemical composition (in %): 18.35 Ni, 8.75 Co, 5.1 Mo, 0.72 Ti,
0.015 C, 0.03 Si, 0.03 Mn, 0.003, S, 0.003 P, 0.02 Al. Weld samples were
subjected to conventional heat treatment of heating to 810-830 C for 20 minutes,
air cooling, aging at 475-485 C for four hours and air cooled, and a repeated
heating treatment of 980-1000 C for 5-10 seconds, done 3-5 times with a
heating rate of 100-300 C/sec. Analysis of mechanical tests (impact strength,
tensile strength, rupture strength, etc.) showed that the repeated heating method
yields properties 15-20% higher than for samples conventionally heat treated.
Nine figures, two tables, 12 bibliographic references.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

USSR

UDC 669.15'24-194:620.17

PERESNEY, G. A., KOZEL'SKIY, A. V., LUK'YANOV, V. V., MALAFEYEV, A. S. and

"High-Strength Carbon-Nickel Steel"

Moscow, Metallovedeniye, No 9, Sep 72, pp 64-66

Abstract: The mechanical properties of C-Ni steels with 10-14% Ni were investigated. The chemical compositions of the steels are as follows:

	NJ	OM	W	. V	Co	Si	Mn	S+P	
0.32	10					0.15			
0 22	70			*			0.20	0.012	
						0.12	0.21	0.010	
0.33	14					0.17	0.91	0.011	
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						0.10	0.80	0.040	
0.17	14	0.38	0.60	0.4		ווח	0.05		
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0.54	10	0.68		Λο΄	1, 5				
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Ingots weighing 30 kg were vacuum-induction melted and rolled into strip 5 mm thick, which was subjected to normalization at 950°C and high-temperature tempering at 500°C. In the hardened state, the UN and UNS steels have high strength and ductility. The highest strength of UN steels can be achieved by quenching 1/2

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

USSR

BERESNEV, G. A., et al., Metallovedeniye, No 9, Sep 72, pp 64-66

from 675°C. Also, the impact strength is lower than after quenching from 750°C. High-nickel steels with a tensile strength of 190-223 kgf/mm² had an impact strength of 5-8.5 kgf-m/cm². UNS-50K steel had the highest strength but less elongation and reduction in area. Alloying C-Ni steels with Mo, W, and V (0.2-0.5%) significantly increases their resistance to tempering, while alloying with cobalt causes additional strengthening with $\Delta\sigma\approx20$ kgf/mm² at 5.5% Co, identical in magnitude in the hardened and tempered state. The increased strength as a result of increased carbon content is high only in the hardened state or after low-temperature tempering. The change of ductility properties with increased strength shows that UNS and UNS-50K C-Ni steels have an elongation of 7-15% and reduction in area of 30% for a strength of 200 kgf/mm². For UNS-50K steel adequate ductility is provided by low-temperature tempering, while very high strength (265-280 kgf/mm²) is preserved. All investigated steels had a fine granular structure, which contributes significantly to their high mechanical properties. 2 figures, 2 tables.

2/2

- 19 -

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

I PRICE REPORT OF THE PRICE OF

1/2 042 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MECHANICAL PROPERTIES OF SHEET MARTENSITIC AGING STEEL NL8K9M57 -U-

AUTHOR-BERESNEY, G.A., PILIKINA, L.G., KATAYEV, YU.I.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2), 60-1

DATE PUBLISHED ---- 70

SUBJECT AREAS -- MATERIALS

TOPIC TAGS--MFCHANICAL PROPERTY, SHEET METAL, METAL AGING, MARTENSITIC STEEL, ALLOY DESIGNATION, NICKEL STEEL, COBALT STEEL, MOLYBOENUM STEEL, TITANIUM STEEL, METAL CRACKING, IMPACT TEST, HIGH STRENGTH STEEL, CRACK PROPAGATION/(U)MS200 NICKEL COBALT MOLYBDENUM, (U)NIBK9MST NICKEL COBALT MOLYBDENUM

CONTROL MARKING--NO RESTRICTIONS

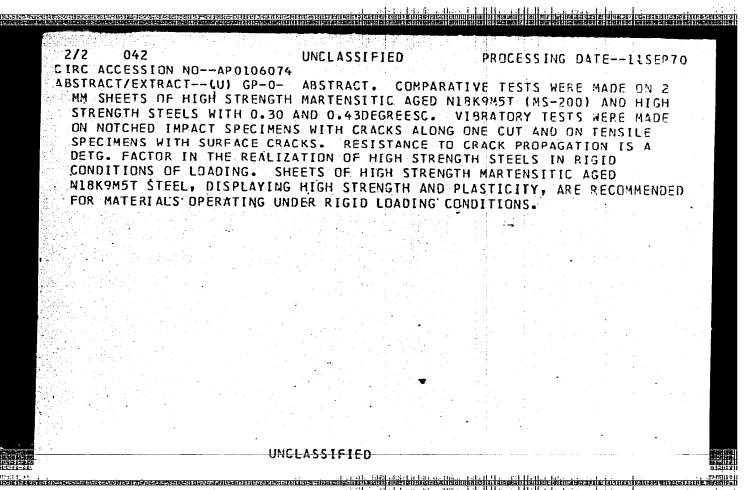
DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1988/1293

STEP NO--UR/0129/70/000/002/0050/0051

CIRC ACCESSION NO--AP0106074

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"



UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF THE METHOD OF HARDENING ON THE RUPTURE RESISTANCE OF
STEEL IN THE PRESENCE OF A SURFACE STRESS RAISER -UAUTHOR-(04)-BERESNEY, G.A., KLEYNER, L.M., SARRAK, V.I., ENTIN, R.I.

COUNTRY OF INFO--USSR

SOURCE-FIZIKA METALLOV I METALLOVEDENIE, FEB. 1970, 29, (2), 427-428

DATE PUBLISHED --- FEB 70

SUBJECT AREAS -- MATERIALS

TOPIC TAGS--STRESS CONCENTRATION, ALLOY STEEL, RUPTURE STRENGTH, AGE HARDENING, DISPERSION HARDENING, BRITTLE FRACTURE, TENSILE STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3003/0346

STEP NO--UR/0126/70/029/002/0427/0428

CIRC ACCESSION NO--AP0129578

UNCLASSIFIED

USSI:

VDC 581.035

SID'KO, F. Ya.; TERSKOV, I. A., Corresponding Member Academy of Sciences USSR; BERESNEV, G. F., YERCSHIN, N. S., and ZAKHAROVA, V. A., Institute of Physics imeni L. V. Kirenskiy, Siberian Department of the Academy of Sciences USSR, Krasnoyarsk

"The Possibility of Utilizing Transition Processes in Order to Increase the Efficiency of Photosynthesis by the One-Celled Alga Chlorella"

Moscow, Doklady Akademii Nauk SSSR, Vol 199, No 5, 1971, pp 1,206-1,208

Abstract: In the experiments conducted, it was established that effective utilization of radiant energy is not achieved in the cultivation of chlorella in dense cultures; the efficiency of photosynthesis is lower than that obtained when the cells are illuminated uniformly. The efficiency could be increased by utilizing light adaptation during a transitional period. This can be done when cultivation is carried out in a multilayer apparatus. A significant

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PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129578

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE EFFECT OF THE METHOD OF HARDENING ON THE RUPTURE RESISTANCE OF A NUMBER OF HIGH STRENGTH ALLOY STEELS IN THE PRESENCE OF A SURFACE CRACK (STRESS RAISER) WAS STUDIED. HARDENING METHODS EMPLOYED INCLUDED: INCREASING THE C CONTENT, STRAIN AGEING, AND DISPERSION HARDENING. THE RESULTS CONFIRMED THAT THERE WAS NO UNAMBIGUOUS RELATIONSHIPS BETWEEN THE NOMINAL UTS AON THE RESISTANCE TO BRITTLE FRACTURE (IN THE SENSE OF SENSITIVITY TO A SURFACE CRACK); THE RESISTANCE TO BRITTLE FRACTURE DEPENDED ESSENTIALLY ON THE METHOD EMPLOYED TO INCREASE THE STRENGTH AND HARDNESS OF THE MATERIAL.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

UNCLASSIFIED

USSR-

SID'KO, F. Ya., et al., Doklady Akademii Nauk SSSR, Vol 199, No 5, 1971, pp 1,206-1,208

0.6, while the total value of D in the two layers corresponded to an equation derived by Sid'ko et al in Sbornik, Aktinometriya i Atmosfernaya Optika [Collection. Actinometry and Optics of the Atmosphere], p 326, Tallin, 1968. The utilization of radiant energy increased in the two-layer apparatus. Thus, at irradiances corresponding to 240 and 480 wt/m² photosynthetically active radiation the efficiency of photosynthesis increased by 25 and 40% vs. that in single-layer cultivation. At an irradiancy of 408 wt/m2, the efficiency of photosynthesis approached 1% and was approximately 1.5 times higher than in single-layer cultivation at irradiances of 80-100 wt/m that were optimal for the single-layer process. The reverse procedure of first irradiating chlorella cells at a low light intensity and then carrying out cultivation at a high intensity had the opposite effect of reducing the efficiency of photosynthesis. Irradiation at high light intensities produced under certain conditions profound changes in the pigment system, morphology, and biochemical composition of chlorella cells, while the efficiency of photosynthesis remained high. One of the changes produced was a reduction in the concentration of chlorophyll.

2/2

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

UDC: 681.325.65:62+52

BELYAVSKIY, V. L., BERESNEV, V. M.

"An Optical Logic Element"

USSR Author's Certificate No 251220, filed 20 Mar 68, published 27 Jan 70 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A47 P)

Translation: This Author's Certificate introduces a logic element which contains cells made up of two crystals, one of which rotates the plane of polarization under the effect of applied voltage, while the other analyzes the polarization of a light beam. To extend the logical possibilities, increase the number of logical inputs, and identify its structure, each cell contains a third crystal which is made, like the first crystal, of a material which rotates the plane of polarization. This crystal is connected to a source of voltage with a potential difference equal to that across the first crystal. The input light beams are directed simultaneously to several points of the input crystal. One illustration. V. M.

1/1

- 27 -

1/2 010 UNCLASSIFIED PROCESSING DATE--020C170
TITLE--CUNDITIONS FOR THE USE OF CARBOXYL CONTAINING LATEX SKD-1 DURING
THE PEPARATION OF SYNTHETIC LEATHER -UAUTHOF-(05)-YERKOVA. L.N., BERESNEY, V.N., MARTINSON, D.K., KOZHUROVA,

T.S., KHIMICH, D.S.

COUNTRY OF INFO--USSR

SOUNCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 4312), 418-22

DATE PUBLISHED ----- 70

SUBJECT AREAS -- MATERIALS

TOPIC TAGS--CARBOXYLATE RUBBER, LEATHER, RUBBER ADHESIVE, HYDROGEN BUNDING/(U)SKD1 SYNTHETIC RUBBER

CONTRUL MARKING--NO RESTRICTIONS

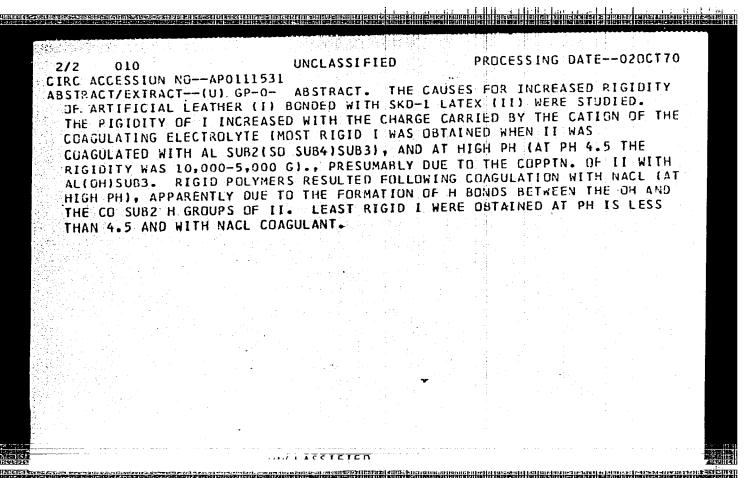
DOCUMENT CLASS--UNCLASSIFIED PRUXY REFL/FRAME--1992/0337

STEP NO--UR/0080/70/043/002/0418/0422

CIRC ACCESSION NU--APO111531

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"



UDC 547.785.5'814.1:542.953

USSR

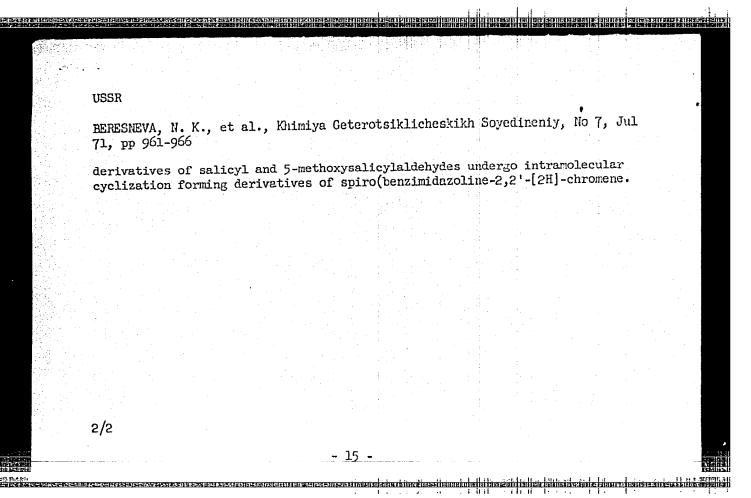
BERESNEVA, N. K., ZAKHS, E. R., and EFROS, L. S., Leningrad Technological Institute Imeni Lensovet

"Condensation Products of 5-Nitro- and 5,6-Dinitro-1,2,3-trimethyl-benzimidazolium Salts and o-Hydroxyaldehydes"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 7, Jul 71, pp 961-966

Abstract: Condensation of aromatic o-hydroxyaldehydes with 5-nitro and 5,6-dinitro-1,2,3-trimethylbenzimidazolium salts gave respective 2-(p-hydroxystyryl) benzimidazoliums. 5-Nitro-1,2,3-trimethylbenzimidazolium methyl sulfate (I) and its 5,6-dinitro homolog (II) were obtained by alkylation of respective nitro-1,2-dimethylbenzimidazoles with dimethyl sulfate. In an alcoholic solution and in the presence of piperidine (I) condenses easily with salicylaldehyde and its derivatives (5-nitro-, 3,5-dibromo-,) and 2-hydroxynaphtylaldehyde. Condensation of (II) in an alkaline medium is accompanied by hydrolytic cleavage of the imidazole ring, which however does not interfere with the formation of merocyanines with 3,5-dibromosalicyl and 2-hydroxynaphtylaldehydes, which are highly insoluble and precipitate from the reaction mixture. If the reaction is slow, the immediate products stay in solution, undergo cleavage and make it difficult to obtain pure products. In absolutely aprotic solvents the 1/2

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USSR

UDC 632.95

BALTRUSHIS, R. S., BERESNEVICHYUS Z.-I.C., MORKUNAS, A. V., and MORKUNENE, M. P., Kaunas Polytechnic Institute and Botanical Garden of the Institute of Botany of the Academy of Sciences Lithuanian SSR

"Legume Growth Stimulant"

USSR Authors' Certificate No 317367, Cl. A Ol n 5/00, filed 23 Apr 70, published 22 Dec 71 (from RZh-Khimiya, No 14, 25 Jul 72, Abstract No 14N550P by T. A. Belyayeva)

Translation: The authors suggest the use of the sodium salt of N-(4-quinoly1)-beta-alanine as a biologically active substance to stimulate the growth and development of legumes. The increase in the number of pods per plant is 16.5-18.2%, in yield per plant 34.2-40.7%, and in the weight of 1000 seeds 6.5-6.9%.

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PRICESSING DATE--020CT70

TITLE -- HEAT STABILIZED POLYCAPRULACTAM -U-

AUTHOR-(02)-BALTRUSHIS, R.S., BERESNEVICHYUS, Z.G.

COUNTRY OF INFO--USSR

13

SOURCE--U.S.S.R. 260,679
REFERENCE--GTKRYTIYA, IZUBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--CHEMISTRY

TUPIC TAGS--THERMAL STABILITY, CAPROLACTAM, ORGANIC AZOLE COMPOUND, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY RECL/FRAME--1992/0243

STEP NU--UR/0482/70/000/000/0000/0000

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CIRC ACCESSION NO--AA0111437

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Superalloys

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TIMOFEYEVA, Ye. N., KUSTOV, Yu. A., BERESTEN, N. Ye., ROMANOVICH, I. V.

"Interaction of ${\rm MoO_3}$ and ${\rm WO_3}$ with NiO, ${\rm Al_2O_3}$, ${\rm HfO_2}$ and ${\rm ZrO_2}$ in Metal Ceramic Production of Nickel Alloys"

Moscow, Neorganicheskiye Materialy, Vol 8, No 10, Oct 72, p 1,872.

Abstract: This work presents the results of a study of the interaction of molybdenum and tungsten trioxides with the oxides of nickel, aluminum, hafnium and zirconium. The initial products used were mixtures of oxide powders with particle dimensions less than 0.1 μ . The powders were heated in air at 400, 600, 800 and 1,000°C for 25 hours to establish the degree of sublimation and nature of interaction, then were subjected to reducing annealing in hydrogen at 800-1,000°C for two hours. X-ray analysis showed a phase identical to the known compound M'MO₄. Nickel tungstenate and molybdate fuse incongruently. They apparently practically do not dissociate in

date fuse incongruently. They apparently practically do not dissociate in air right up to the melting point. The presence of the oxides of high temperature modifications of aluminum, hafnium and zirconium does not reduce the rate or degree of sublimation of molybdenum trioxide and tungsten tri-

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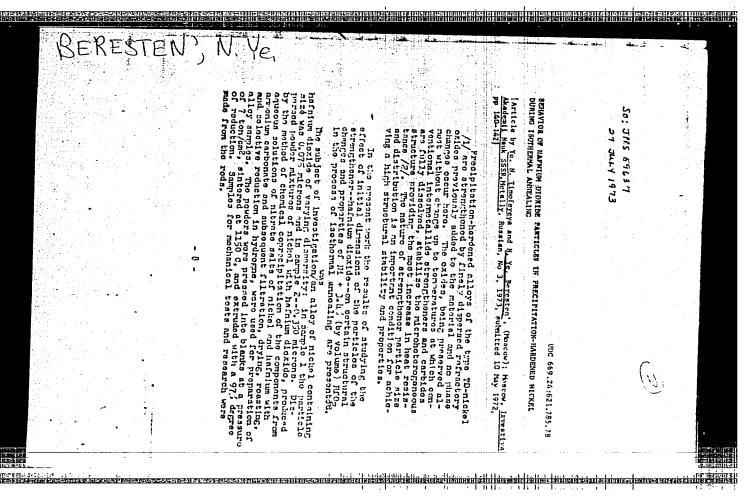
UDC 546.77'21+546.78'21+546.623'21+546.832'21+ +546.74'21

TIMOFEYEVA, Ye. N., KUSTOV, Yu. A., BERESTEN', N. Ye., ROMANOVICH, I. V., Moscow, Neorganicheskiye Materialy, Vol 8, No 10, Oct 72, p 1,872.

oxide. The presence of nickel molybdate or tungstenate does not influence the kinetics of reduction; the entire quantity of alloying elements enters the solid solution in the stage of reduction of the mixture of oxides.

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USSR

UDC 621.762:669.245

BABICH, B. N., BERESTEN' N. Ye., LYUKEVICH, V. I., ROMANOVICH, I. V., TIMOFEYEVA, N. I.

"Influence of Distribution of Hardening Phase Particles in Powders on Thermal Stability of Dispersion-Hardened Nickel"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 25-30.

Abstract: This article studies the structural stability and strength properties of compositions produced of powders made by various methods providing near-identical hardening phase particle dimensions but different distributions of these particles in the matrix. It was found that achievement in initial powders of the most even possible distribution of ultrafine particles of the hardening phase assures thermal stability of dispersion-hardened nickel. The level of high-temperature properties of dispersion-hardened nickel depends on the presence of a certain quantity of oriented recrystallization areas in the structure with total absence of equiaxial grains. Unevenness of particle distribution of the hardening phase particles in the initial powders causes an increase in the mean particle size when the compact material is produced and a change in the nature of recrystallization, with the formation of equiaxial grains. The tests were based on nickel powder with 2% hafnium dioxide. The powders were produced by carbonate precipitation of nitrate solutions and evaporation concentration. Following hot extrusion 1/2

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USSR

UDC 621.762:669.245

BABICH, B. N., BERESTEN', N. Ye., LYUKEVICH, V. I., ROMANOVICH, I. V., TIMOFEYEVA, N. I., Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 25-30.

and cold drawing, the batch with poorer distribution showed intensive particle growth, probably as a result of accumulation of particles into conglomerates.

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- 37 -

USSR

UDC 533+536.423.1

BERESTENKO, V. M., KOSOV, N. D., BROVANOV, I. S.

"Pressure Change Accompanying Mutual Diffusion in Compressed Gases"

V sb. Fizika (Physics -- Collection of Works), No. 5, Alma-Ata, 1971, pp 116-120 (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye49)

Translation: Pressure changes for eight pairs of gases were measured at different pressures and temperatures with the aid of a two-chamber device with electromagnetic covering of the chambers. The pressure rise in the chambers of the diffusion device increases with a rise in the initial pressure and a drop in temperature. The greatest pressure rise is observed for $\rm H_2-O_2$ and $\rm He-CO_2$ mixtures close to the critical region of $\rm CO_2$. The pressure change is explained quantitatively by the presence of complexes in heavy gases. Authors' abstract.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

Acc. Nr:

AP0045589

Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1,

pp 137-143

MELTING OF DNA WITH DEFECTS IN ITS SECONDARY STRUCTURE Berestetskaya, I. V.; Kosaganov, Yu. N.; Lazurkin, Yu. S.; Trifonov, E. N.; Frank-Kamenetskiy, M. J. Institute of Atomic Energy, USSR, Moscow

It is shown that the increase in width of the melting range of DNA due to shear degradation is in accordance with the recently developed theory [5]. Since this increase is due to the disruption of the base stacking interaction at the ends of helical regions. the measurement of the increase of the melting width can be used as a method for determination of concentration of defects (locally denaturated sites) in DNA of high molecular weight. Potentialities of the proposed thermodynamic method are illustrated by the experiments with DNA samples containing defects induced by UV-irradiation. The

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concentration of defects in these DNA samples was estimated also by means of recently proposed kinetic method [I]. Analysis of the question concerning the sensitivity of both methods in regard to the defects of different origin showed that as it has been expected these methods did not distinguish between the ends of sheared molecules and the ends of helical regions neighbouring the locally denaturated sites. This result confirms the validity of the use of shear degraded DNA for calibration of both methods.

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USSR UDC: 621.396.666

BERESTNEY, P. D. and KOSOVA, A. L.

"Analyzing Nonlinear Distortion in AGC Circuits by the Change in Interstage Coupling"

V sb. Radioelektron. v nar. kh-ve SSSR, Ch. 2 (Radioelectronics in the National Economy of the USSR, Part 2-collection of works) Kuybyshev, 1970, pp 84-90 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No.3D40)

Translation: An examination is made of an amplifier circuit with an automatic gain control system, based on the change in interstage coupling as a result of a change in a semiconductor dicde resistance. An equation determining the coefficient of nonlinear distortion of the envelope from the second harmonic is derived.

N. S.

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UDC: 621.396.666

BERESTNEY, P. D. and KOSOVA, A. L.

"AGC Circuit With Parallel Controlled Circuits in Interstage Coupling Arrangements"

V sb. Radioelektron. v nar. kh-ve SSSR, Ch. 2 (Radioelectronics in the National Economy of the USSR, Part 2-collection of works) Kuybyshev, 1970, pp 77-83 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D39)

Translation: An amplifier circuit with automatic gain control is examined in which two semiconductor diodes are used in an interstage coupling circuit connected in series for d-c and in parallel for a-c. N. S.

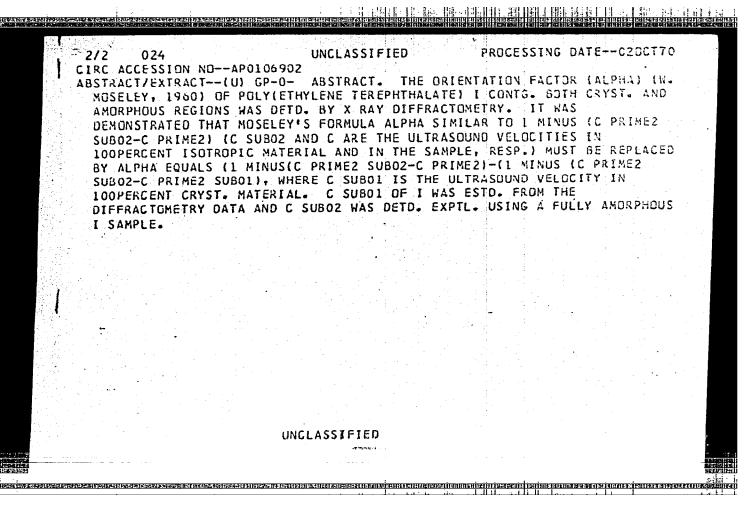
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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"



TITLE—CN SPLITTING OF THE SPECIFIC HEAT PEAK AND DISCONTINUITY NEAR THE AUTHOR-(02)-BERESTOV, A.T., MALYSHXO, S.D.

CGUNTRY OF INFC--USSR

SOURCE—ZHULNAL EKSPERIMENTAL NOY I TECRETICHESKOY FIZIKI, 1970, VOL 58, DATE PUBLISHED————70

SUBJECT AREAS-PHYSICS

TOPIC TAGS--SPECIFIC HEAT, SPECIFIC HEAT RATIO, TEMPERATURE DEPENDENCE, CRITICAL POINT, CALORIMETER, CALORIMETRY, SPECIFIC DENSITY, RELAXATION PROCESS, IMPURITY LEVEL, TEMPERATURE GRADIENT, PHASE TRANSITION, SECOND ORDER PHASE TRANSITION, THERMODYNAMIC EQUILIBRIUM, CRYSTAL LATTICE

CENTROL MARKING-NC RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1998/0529

STEP NO--UR/0056/70/058/006/2090/2098

CIRC ACCESSION NG-APO121202

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

038 UNCLASSIFIED PROCESSING DATE-- 20NOV70 CIRC ACCESSION NO--APO121202 ABSTRACT/EXTRACT-- (U) GP-0- ABSTRACT. EXPERIMENTS SHOW (PRIMEL) THAT THE SPECIFIC HEAT C SUBV PRIMESS OF A BINARY SYSTEM AS A FUNCTION OF TEMPERATURE DUES NOT LIE ON THE CREXISTENCE CURVE NEAR THE CRITICAL POINT, I. E. IT DOES NOT COINCIDE WITH THE SPECIFIC HEAT DISCONTINUITY. THIS EFFECT IS NOT THE RESULT OF IMPURITIES IN THE SYSTEM BUT RATHER THE RESULT OF INHOMOGENEITY OF THE MATTER ALONG THE HEIGHT OF THE CALGRIMETER WHICH PERSISTS EVEN DURING STIRRING. THE CALCULATION RESULTS SATISFACTORILY AGREE WITH THE EXPERIMENTS AND THE INHOMOGENEITY PARAMETER WEICH IS EVALUATED IS REASONABLE (REASONABLE VALUES ARE ALSO OBTAINED FOR THE ISOTHERMAL DENSITY DISTRIBUTION RELAXATION TIME). THE PRESENCE OF IMPURITIES AND SMALL TEMPERATURE GRADIENTS IN THE SIMPLE MODIFY THE PEAK SPLITTING AND SPECIFIC HEAT DISCONTINUITY AND LEAD TO ADDITIONAL DISTORTION OF THE SINGULARITY. A SIMILAR BEHAVIOR IS ALSO OBSERVED IN SOLID BODIES NEAR PHASE TRANSITION POINTS OF THE SECOND KIND: THIS. APPARENTLY. CAN LIKEWISE BE EXPLAINED BY EXTERNAL ACTIONS ON THE SYSTEM, E.G. NONUNIFORMITY OF THE ORDER PARAMETER IN THE SAMPLE DUE, FOR EXAMPLE, TO AN EXTERNAL NONUNIFORM FIELD OR TO INHOMOGENEITIES PRODUCED DURING PREPARATION OF THE SAMPLE AND WHICH ARE NOT IN THERMODYNAMIC EQUILIERIUM WITH THE LATTICE. FACILITY: VYSOKIKH TEMPERATUR AN SSSR. INSTITUT

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

UNCLASSIFIED PROCESSING DATE--16DCT70
TITLE--EFFECT OF POTASSIUM CHLORIDE AND SULFATE ON THE YIELD OF BARLEY AND
ON THE UPTAKE OF NUTRIENTS BY THE PLANTS -UAUTHOR-(02)-RUBANOV, /.S., BERESTOV, I.I.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1370, (1), 44-9

DATE PUBLISHED ---- 70

SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--POTASSIUM CHLORIDE, SULFATE, AMMONIUM COMPOUND, HYDROXIDE, CEREAL CROP, FERTILIZER APPLICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1993/0328

STEP NO--UR/0485/70/000/001/0044/0049

CIRC ACCESSION NO--APJ113254

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--160CT70 2/2 CIRC ACCESSION NO--APO113254 ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. IN A LAB. EXPT., BARLEY PLANTS WERE FERTILIZED WITH NAMO SUB3 OR NH SUB4 OH, SUPERPHOSPHATE, AND KCL OR K SUB2 SO SUB4. WHEN NAND SUB3 WAS THE N SOURCE, THE DRY WT. OF BARLEY IN VARIOUS DEVELOPMENTAL STAGES WAS GREATER THAN WHEN NH SUB4 OH WAS USED, AND THE EFFECTS OF KCL AND K SUB2 SO SUB4 WERE THE SAME ON GRAIN YIELD, ACCUMULATION OF PROTEIN AND ORG. P. AND ON THE UPTAKE OF ALL 3 ELEMENTS BY THE PLANTS. WHEN NH SUB4 OH WAS USED! K SUB2 SO SUB4 WAS MORE EFFECTIVE THAN KCL IN PROMOTING THE UPTAKE OF NUTRIENTS AND THE SYNTHESIS OF PROTEIN AND P-CONTG. ORG. SUBSTANCES BY THE PLANTS. FERTILIZATION WITH NH SUB4 OH INCREASED THE NEED OF PLANTS FOR K. K FERTILIZERS INCREASED THE AMT. OF NONEXCHANGEABLE K IN THE SUIL. FACILITY: BELORUSS. NAUCH.-ISSLED. INST. ZEMLED., ZHODINO, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

USSR

POLYAKOV, V. P., BERESTOVAYA, I. K.

UDC: 621.318:549.731(088.8)

"A Ferrite Material"

USSR Author's Certificate No 250331, filed 21 Dec 67, published 9 Jan 70 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6B198 P)

Translation: This patent introduces a material for waveguide channel elements. The material is distinguished by improved thermal stability of saturation magnetization. The composition is given by the formula Y $3-2x^{Ca} + x^{Ca} + x^{C$

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Biophysics

USSR

UDC 591.882

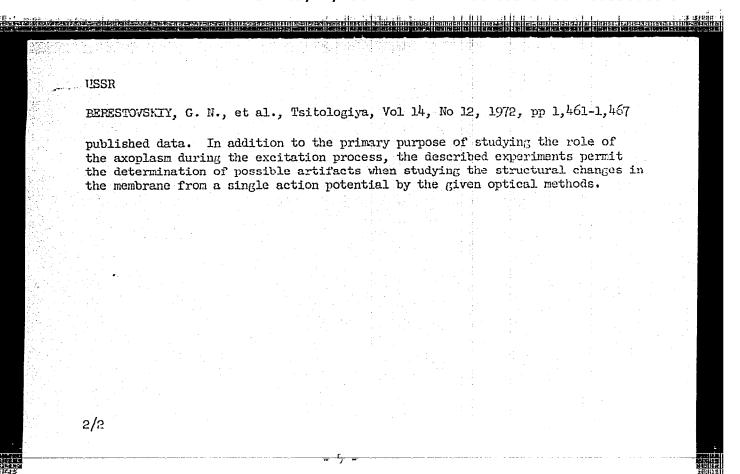
RAZEIN, V.D., Laboratory of Biophysics of Living Structures, Institute of Biological Physics, Academy of Sciences USSR, Pushchino-na-Oke

"Study of the Cumulative Structural Changes in a Nerve Fiber During Rhythmic Stimulation Using Optical Techniques"

Leningrad, Tsitologiya, Vol 14, No 12, 1972, pp 1,461-1,467

Abstract: Optical techniques (birefringence, ultraviolet absorption, light dispersion) were used to study the structural and physical-chemical changes in nerve fiber accumulated during rhythmic activation of it. The studies were made on the giant axons of the squid and the ventral nerve cord of crayfish. The quantitative analysis of the experimental results led to the following conclusions: in practice there are no cumulative changes in the degree of orientation of the macromolecular structures in the axoplasm, including the gel-sol transition even as a result of transmission of several thousands of pulses through the nerve; although conformational changes take place in the proteins of the entire axoplasm 20 milliseconds after generation of a single action potential, they are expressed two orders more weakly than in the case of denaturation; the results of the light dispersion experiments agree with the 1/2

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UDC 8.74

BERESTOVAYA, S. N.

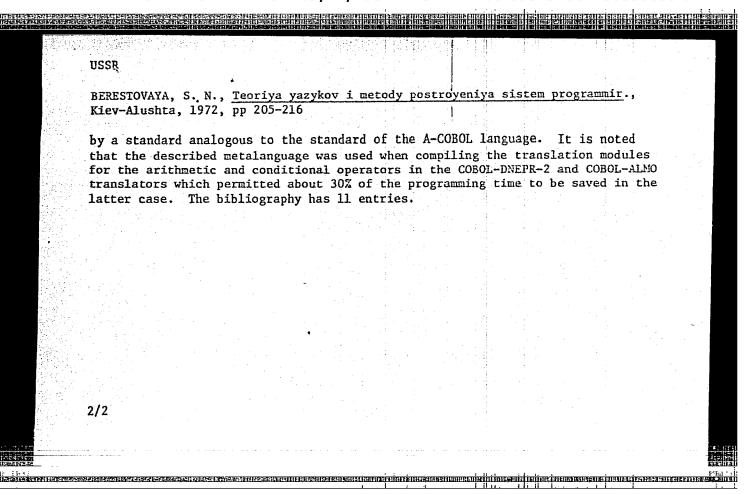
"Some Problems of Describing the Semantics of Programming Languages"

V sb. <u>Teoriya yazykov i metody postroyeniya sistem programmir.</u> (Language Theory and Methods of Constructing Programming Systems—collection of works), Kiev-Alushta, 1972, pp 205-216 (from <u>RZh-Kibernetika</u>, No 12, Dec 72, Abstract No 12V435)

Translation: The plan of a metalanguage for describing the semantics of programming languages is discussed where the programming is the synthesis of the elements of an address language, COBOL, PL and certain apparatus for giving the output language. The metalanguage comprises semantic modules each of which begins with a title having a format. The data used in the semantic modules are subdivided into constants and variables. Constants of the following types are permitted: digital (representing a decimal number written using a decimal if it is not an integer), symbolic (representing a row comprising symbols of an alphabet permissible for data and included in quotation marks), bit (representing a row of numbers beginning with the number in parentheses indicating in what calculus the constant is given) or representing a tag. The variables can be digital, symbolic or bit and also tag or index depending on what values they assume. The size and form of the digital, symbolic and bit data are described 1/2

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UNCLASSIFIED PROCESSING DATE--16DCT70

TITLE--OPTICAL STUDIES OF THE CHANGE IN THE STRUCTURE OF NERVE MEMBRANE

DURING NERVE IMPULSE TRANSMISSION -U-

AUTHOR-(04)-BERESTOVSKIY, G.N., LIBERMAN, YE.A., LUNEVSKIY, V.Z., FRANK,

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 1970, 15(1), 62-8

DATE PUBLISHED ---- 70

SUBJECT AREAS -- BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CRAYFISH, NEURON, CELL MEMBRANE, PHOSPHOLIPID, LIGHT REFRACTION

CONTROL MARKING--NO RESTRICTIONS

PROXY REEL/FRAME--1996/0625

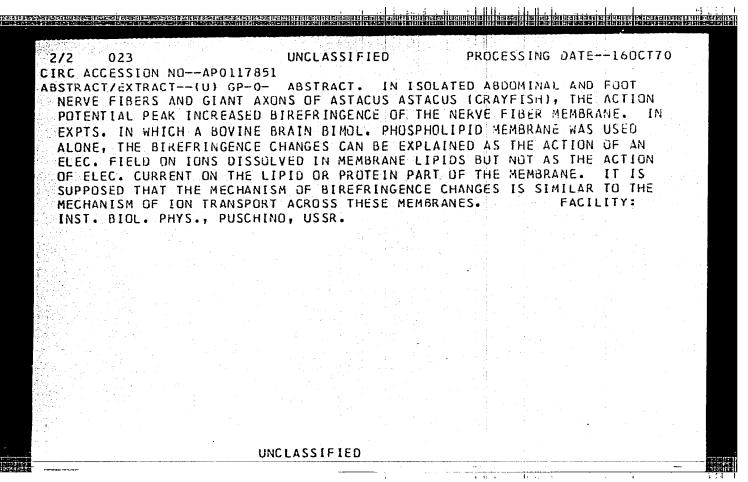
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CIRC ACCESSION NU--APO117851

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Biophysics

USSR

BERESTOVSKIY, G. N., LIBERMAN, Ye. A., LUNEVSKIY, V. Z., and FRANK, G. M., Institute of Biological Physics, Academy of Sciences USSR

"Optical Studies on Changes in the Structure of the Nerve Membrane During the Conduction of Nerve Impulses"

Moscow, Biofizika, No 1, 1970, pp 62-68

Abstract: During action potential there is a change in the birefringence of the nerve fiber membrane due to change in the electric field in the membrane. At the peak of action potential, the birefringence of the membrane increases by $1.5 \cdot 10^{-4}$ and the value of the optical effect recorded is inversely proportional to the diameter of the axon. Changes in birefringence of phospholipid membranes are due to changes in their structure following displacement of the fat-soluble ions by the electric field and not to the direct action of the field on the lipid or protein part of the membrane. The mechanism of change in permeability of a nerve membrane may be similar to the mechanism of ion migration across these phospholipid membranes.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"

USSR

UDC: 621.317.335.3

BARTASHEVSKIY, Ye. L., BEREZA, A. Ye., PRIVALOV, Ye. N., ABKIN, Ye. B.

"Measurement of the Permittivity of Plates Which Partially Fill the Cross Section of a Rectangular Waveguide"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 77-78 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A366)

Translation: A procedure is considered for determining permittivity on the basis of plotting the field structure in the longitudinal and transverse cross section of a rectangular waveguide on the H₁₀ mode with a plate on the narrow wall of propagation for the case where the permittivity of the plate is a complex quantity. The fundamental relationships are presented and some computational singularities are indicated. The results of some measurements of permittivity in the 3-cm band are given. Bibliography of two titles. E. L.

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USSR

UDC: 550.834

SLUTSKOVSKIY, A. I., VASIK, A. I., NIKIFOROV, S. V., BEREZA, G. V.

"A Device for Recording Seismic Time Profiles in the Form of Triangles and Trapezoids"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, Mar 72, Author's Certificate No 330410, Division G, filed 10 Nov 69, published 24 Feb 72, p 143

Translation: This Author's Certificate introduces: 1. A device for recording seismic time profiles in the form of triangles and trapezoids. The device contains an optimizer, a modulator and a scanning system. As a distinguishing feature of the patent, the effectiveness of processing seismic data is improved by connecting high-frequency square-wave sources through integrating circuits and amplifiers to the inputs of the balanced modulator whose output is connected through an amplifier to a diode bilateral clipper with controllable threshold. The second input of the clipper is connected to a pulse amplifier of extremum values of seismic signals, and the clipper output is connected through an amplifier and half-wave rectifier to the amplifier of the vertical deflecting system of a cathode ray tube. 2. A modi-

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SLUTSKOVSKIY, A. I. et al., USSR Author's Certificate No 330410

fication of this device distinguished by the fact that the stability of scanning triangular and trapezoidal images on the screen of the CRT is improved by connecting the high-frequency square-wave source with twice the frequency of the low-frequency sources through a differentiating circuit to the controlling input of a switch connected in parallel with the input of an amplifier and a capacitor. The capacitor is connected through a resistor to a DC voltage source, and the output of the amplifier is connected to the horizontal deflecting system of the cathode ray tube.

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1/2 014 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--STRUCTURE AND PROPERTIES OF CELLULOSE AND ITS DERIVATIVES. 306.
SYNTHESIS OF GRAFT COPOLYMERS OF CELLULOSE WITH POLYACRYLONITRILE BY
AUTHOR-(03)-BEREZA. M.P., LIVSHITS, R.M., ROGOVIN, Z.A.

SOUNTRY OF INFO--USSR

DATE PUBLISHED ---- 70

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(3),

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CELLULOSE RESIN, POLYACRYLONITRILE, COPOLYMER, NATURAL FIBER

CONTROL MARKING--NO RESTRICTIONS

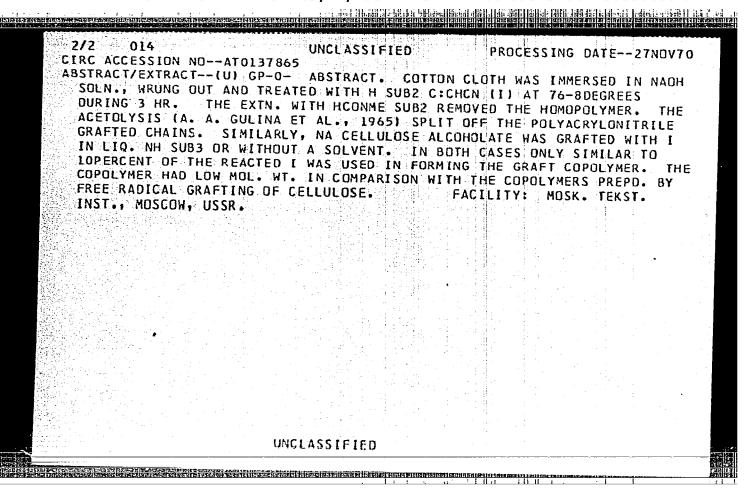
DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--3008/0837

STEP NO--UR/0153/70/013/003/0416/0418

CIRC ACCESSION NO--ATO137865

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UNCLASSIFIED PROCESSING DATE--18SEP70

ITTLE--PROPERTIES OF POLY(METHYL METHACRYLATE) SOLUTIONS IN SOLVENT

PRECIPITATING AGENT MIXTURES -U
AUTHOR-(02)-BEKTUROV, E.A., BEREZA, S.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(1), 55-9

DATE PUBLISHED ---- 70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMETHYLMETHACRYLATE, INTRINSIC VISCOSITY, POLYMER RHEOLOGY,

CONTROL MARKING -- NO RESTRICTIONS

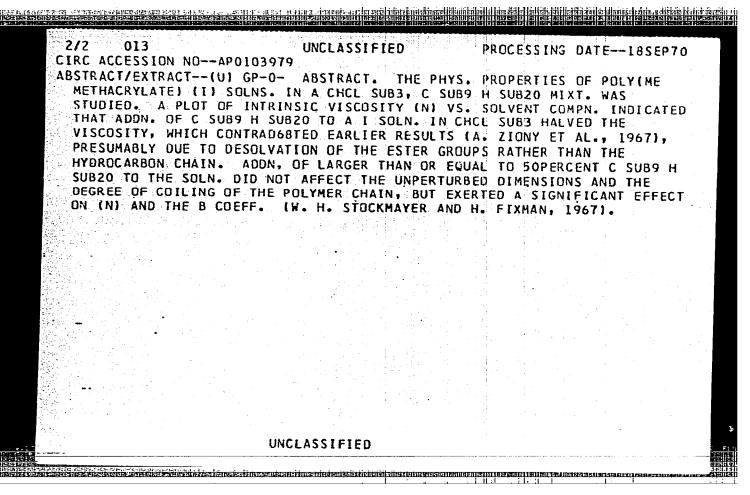
PROXY REEL/FRAME--1987/0324

STEP NO--UR/0360/70/020/001/0055/0059

CIRC ACCESSION NO--APO103979

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330005-6"



1/2 014
TITLE--CERTAIN REGULARITIES OF THE STRENGTH DISTRIBUTION IN PYROCERAMICS
-UAUTHOR-(04)-BELDIVAN, A.F., BEREZANSKIY, V.V., ISAKHANOV, G.V., ZHURAVEL,

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COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, APR. 1970, P. 74-78

DATE PUBLISHED ---- APR 70

SUBJECT AREAS -- MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--QUALITATIVE ANALYSIS, PYROCERAM, QUANTITATIVE ANALYSIS, BENDING STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--2000/0144

STEP NO--UR/3663/70/002/000/0074/0078

CIRC ACCESSION NO--APO123916

UNCLASSIFIED

PYROCERAMIC ON THE	(U) GP-O- ABSTRACT. STUDY MEASURED ON CYLINDRICAL AND G. THE RELATIONSHIPS BETWEE	PROCESSING DATE13NOV70 OF THE TRANSIENT STRENGTH OF PRISMATIC SAMPLES SUBJECTED NOT THE STRENGTH OF THE
VALUES WITH RESPE	IMATION IC HARE OF THE	VED DISPERSION OF STRENGTH
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UDC: 517.948.35

BEREZANS'KYY Yu. M., Corresponding Member of the Academy of Sciences of the Ukrainian SSR, Institute of Mathematics, AS UkrSSR

"A General Theorem on Moment Matrices"

Kiev, Dopovidi Akademii Nauk Ukrainskoi RSR, Serivgn A; Fizyko-Tekhnichni ta Matematychni Nauki, No 4, Apr 71, pp 291-294

Abstract: Let $\mathfrak H$ be a kernel space with involution +, and let $\mathfrak H$ be a fixed, real subspace of $\mathfrak H$. The matrix $K = (K_{jk})_{j,k=0}^{\infty} (K_{jk} \in (\mathfrak H \otimes \ldots \otimes \mathfrak H))$

is called a moment matrix if it is positively defined in the sense that $\sum_{j,k=0}^{\infty} K_{jk}(u_j \otimes u_k) > 0 \text{ and if it satisfies the relationships } K_{j-1k}(u_j \otimes \varphi \otimes v_k) = K_{jk+1}(u_j \otimes \varphi \otimes v_k), K_{j+1k+1}(u_j \otimes \varphi \otimes \psi \otimes v_k) = K_{j+1k+1}(u_j \otimes \varphi \otimes v_k) (\varphi, \varphi \in \Theta). \text{ Here } u_i, v_i \text{ is an arbitrary vector from } \underbrace{\hat{y} \otimes \dots \otimes \hat{y}}_{j}, \text{ the involution } \leftarrow \text{ to tensor powers is extended in such a way that } \underbrace{u_j \otimes v_k}_{j} = \underbrace{v_k \otimes u_j}_{j}. \text{ In particular, if }$

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BEREZANS'KYY, Yu. M., Dopovidi, Seriya A, pp 291-294

.G coincides with the real part of all of \mathcal{F}_i , then $K_{j_R} = S_{j+k}$, where $S = (S_n)_{n=0}^{\infty}$

is a so-called moment sequence. The author presents a more general form of a previously proposed theorem on integral representation of moment matrices (Yu. M. Berezanskiy, "Conference on Hilbert Spaces and Operator Algebra, Tihany, 14-18 Sep 1970", Budapest, 1970); this theorem includes a number of generalizations of the power problem of moments resulting from attempts to construct objects which satisfy the axioms of quantum field theory. Only separable spaces are considered.

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USSR

BEREZANSKIY, Yu. M., and SHIFREN, S. N. (Institute of Mathematics of the Ukrainian Academy of Sciences, Kiev State University)

"Generalized Symmetric Power Problem of Moments"

Kiev, Ukrainskiy Matematicheskiy Zhurnal, May-June 1971, pp 291-306

Abstract: The following generalization of a multivariate power problem of moments is studied:

Let \mathcal{G} be the space of a kernel with an involution $\mathcal{R}^n = \underbrace{\mathfrak{H} \otimes \ldots \otimes \mathfrak{H}}_n (\mathfrak{H}^0 = C)$

the involution expanding in S_i^n by means of tensor powers. The sequence $S = (S_n)_{n=0}^{\infty}$, where $S_n \in (\mathfrak{H}^n)'$ and symmetrical, is called a "moment sequence" if $\sum_{j \neq k} S_{j+k}(u_j \otimes \bar{u}_k) \geqslant 0$ for any finite sequence $S_n \in \mathfrak{H}^n$. The expression

 $S_n = \int_{\mathbb{R}^n} \frac{\lambda \otimes ... \otimes \lambda d\varrho(\lambda)}{n}$ (n = 0, 1, ...), where $d \in \mathcal{C}(\lambda)$ is some nonnegative measure 1/2

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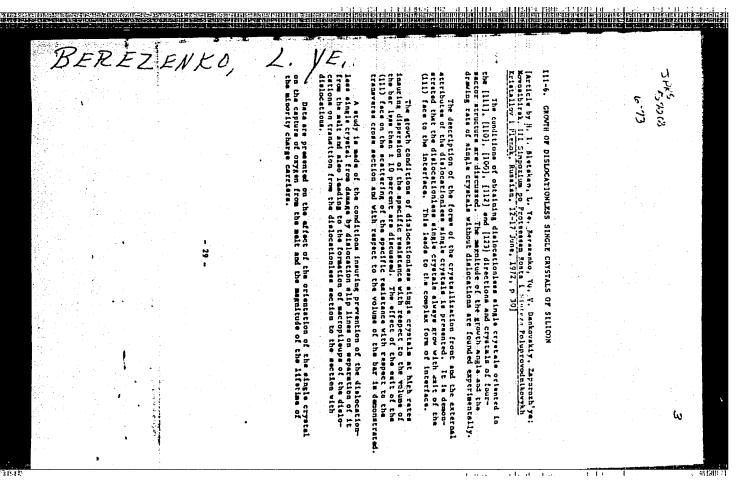
BEREZANSKIY, Yu. M., and SHIFRIN, S. N., Ukrainskiy Matematicheskiy Zhurnal, May-June 1971, pp 291-306

on the real part \mathcal{N}_{Re} of the space \mathcal{N} , is proven to be valid for a moment sequence satisfying some restriction on an increase in n. The restriction on the increase is such that the measure $d\mathcal{V}(\lambda)$ can be defined as single-valued as well as nonsingle-valued with respect to S. Examples are considered.

There are 23 bibliographic references.

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PISKOVA, G. K., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

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"Effect of a Strong Electromagnetic Field of Optical Frequency on the Hydrogen Molecule"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 58, No 3, Mar 70, pp 753-759

Abstract: An experimental study of the effect of a strong electromagnetic field on the excitation, ionization, and dissociation of the hydrogen molecule is presented. The radiation source was a neodymium laser with a quantum energy of 1.18 ev and wavelength of 1.06 μ . In this case, four quanta were required for the dissociation of the hydrogen molecule and fourteen quanta for ionization. This quantum energy was considerably less than the ionization and dissociation potentials of the molecule. It was found that for a field strength of $E \approx 5.107 \text{ v/cm}$ there basically occurs ionization of the molecule with the formation of an E_2 + ion E_2 + E_3 + E_4 + E_4 + E_5 + E_6 - E_7 + $E_$

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FEREZHETSKAYA, N. K., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 58, No 3, Mar 70, pp 753-759

the probability of molecular ion formation on field strength has the form

$$W(H_2+) = AE^{2K}$$
 for $K = 10.5+2.8$.

The need for further experimental and theoretical work to describe the effect of a strong electromagnetic field on molecules is emphasized.

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Acc. Nr: //0043768

Ref. Code: UR 0056

PRIMARY SOURCE:

Zhurnal Eksperimental noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 753-759

EFFECT OF A STRONG OPTICAL FREQUENCY ELECTROMAGNETIC FIELD ON THE HYDROGEN MOLECULE

N. K. Berezhetskaya, G. S. Voronov, G. A. Delone
N. B. Delone, G. K. Piskova

The radiation of Nd glass laser the quantum energy of which $(\hbar\omega=1.18~{\rm eV})$ is much less that the potentials of ionization and dissociation are was employed. The strong electromagnetic field action on the H_2 molecule was investigated experimentally. It has been found that for the field strength $E=5.10^7~{\rm V/cm}$ the multifoton ionisation process $H_2+14~\hbar\omega\to H_2++e$ has far greater probability than the process of multiphoton dissociation $H_2+5~\hbar\omega\to H+H$. The value of multiphoton ionisation probability and its dependence on the light intensity has been mesuared.

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BEREZHETSKIY, M. S., GREBENSHCHIKOV, S. Ye., KOSSYY, I. A., SBITNIKOVA, I. S., SHPIGEL', I. S.

"Electrostatic Probe Measurements on the L-1 Stellarator"

Tr. Fiz. in-ta AN SSSR (Works of the Physics Institute, Academy of Sciences of the USSR), 1973, 65, pp 82-99 (from RZh-Fizika, No 6, Jun 73, abstract No 6G356)

Translation: The paper describes methods of using electrostatic probes to measure the parameters of a plasma injected into the L-l stellarator by a spark source. Isolated Langmuir probes, an emitting probe, a multigrid electrostatic probe, and double probes were used to measure the plasma potential, electron temperature, ion temperature, ion concentration, fluctuating ion flow to the wall of the chamber, and quasiconstant ion fluxes. The probe designs and electrical measurement setup are described, and the possibilities of the probe method under conditions typical for the L-l stellarator are discussed. A brief review is given of the principal results of measurements. Eibliography of 22 titles.

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UNCLASSIFIED PROCESSING DATE--160CT70 TITLE--ON OPTIMAL CONTROL OF PROCESSES WITH PARAMETERS UNDER RESTRICTED PHASE COORDINATES -U-AUTHOR-(02)-BEREZHINSKIY, T.A., OSTROVSKIY, G.M. COUNTRY UF INFO--USSR SOURCE--AVTOMATIKA I TELEMEKHANIKA, 1970, NR 2, PP 7-13 DATE PUBLISHED----70 SUBJECT AREAS -- MATHEMATICAL SCIENCES, MECH. LIND., CIVIL AND MARINE ENGR TOPIC TAGS--OPTIMAL AUTOMATIC CONTROL, AUTOMATIC CONTROL DESIGN CONTROL MARKING--NO RESTRICTIONS DOCUMENT CLASS--UNCLASSIFIED PROXY REEL/FRAME--1983/1974 STEP NU--UR/0103/70/000/002/0007/0013 CIRC ACCESSION NO--AP0054772 -----UNCLASSIFIED-